



Introduction

- Studies that have evaluated both medical and economic benefits of tonsillectomy in the adult population, reported improved quality of life with decreased antibiotic usage, physician visits, resolution of sore throat, and missed working days.
- Post-surgical complications have a potential for significant morbidity and rarely, mortality.
- Numerous studies exist on the indications and factors associated with complications following tonsillectomy in the pediatric population; however, the extent to which the data can be reliably extrapolated to adults remains unclear.
- Tonsillectomy in the adult population (>18 years) is associated with readmission and revisit rates as high as 11%.
- Additionally, post-tonsillectomy hemorrhage has been reported in up to 14.5% in adult patients, compared to only 3-5% of the pediatric cases.
- The purpose of this retrospective study was to elucidate the factors associated with increased postoperative complications and evaluate for trends in the indications for tonsillectomy.

Materials and Methods

- A retrospective cohort study was conducted by reviewing medical records from 2004-2020 of adults (≥ 18 years) who underwent tonsillectomy at the Hershey Medical Center
- Demographic, social and clinical data were collected
- Indications for surgery were categorized as infectious etiology, biopsy, obstructive sleep apnea (OSA) and tonsillar stones
- Data regarding postoperative hemorrhage, emergency department (ED) visits, and readmissions were collected
- Post-tonsillectomy hemorrhage (PTH) was defined as any active bleeding in the oropharynx or blood clot in the tonsillar fossae that required observation or management in the operating room
- Bivariate association methods and multivariable logistic regression models were used to evaluate factors associated with postoperative complications

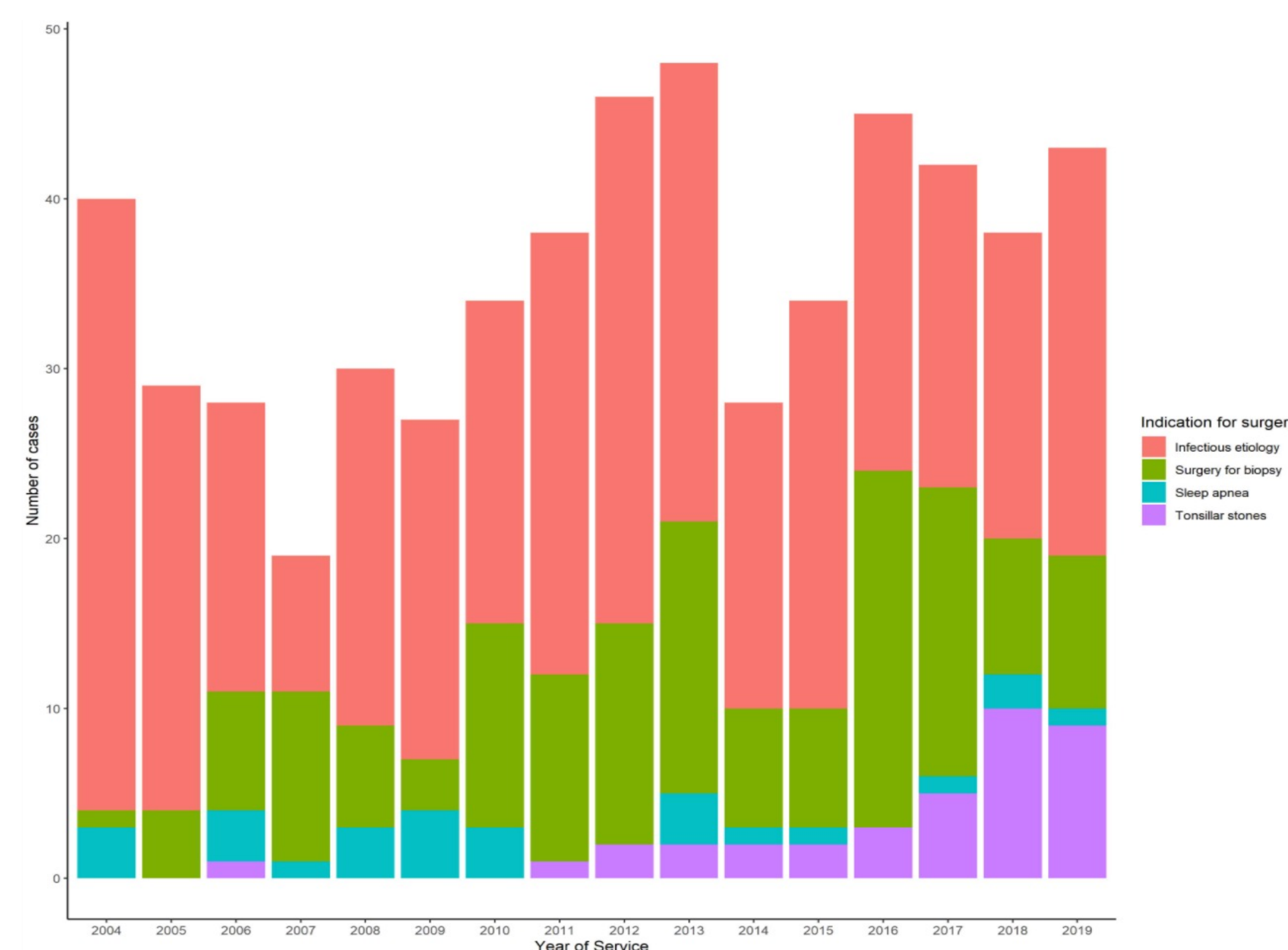
Table 1. Multiple logistic regression of select factors associated with any postoperative bleeding

Odds Ratio Estimates and Wald Confidence Intervals			
Effect	Estimate	95% Confidence Limits	P-value
Age	0.973	0.946 1.000	0.0495
Gender (M vs. F)	3.091	1.766 5.412	<0.001
Surgery for infection vs. biopsy	1.721	0.733 4.042	0.213
Surgery for tonsillar stones vs. biopsy	2.959	0.937 9.342	0.064

Table 2. Multiple logistic regression of select factors associated with postoperative ED visits

Odds Ratio Estimates and Wald Confidence Intervals			
Effect	Estimate	95% Confidence Limits	P-value
Age	0.957	0.924 0.992	0.0177
Gender (M vs. F)	0.577	0.227 1.467	0.248
Smoking history vs. none	1.859	0.887 3.897	0.100

Figure 1. Mantel-Haenszel Chi-Square test for linear trends in tonsillectomy indications



Results

- 574 adults (mean age 32 years, 69.9% F vs. 30.1% M) who underwent tonsillectomy were included
- The most common indication was infections (62.2%), followed by biopsy (26.5%), tonsillar stones (6.8%), and OSA (4.5%).
- No statistically significant differences across the surgical indications for the proportion of early (<24 hr) vs. late (>24 hr) hemorrhage, incidence of second postoperative bleeding event, bleeding management (operative vs. conservative), incidence of ED visits and readmissions
- The highest frequency of postoperative bleeds (17.9%) occurred in the tonsillar stone's cohort; however, on multivariate analysis, indication for surgery was not a significant predictor
- Male gender and age were independent predictors of postoperative bleeding, such that with every one-year of increase in age, the odds of having a bleed decreased (OR= 0.97; 95% CI= 0.95-0.99)
- Younger age was a significant predictor of postoperative ED visits (OR= 0.96; 95% CI= 0.92-0.99)
- Mantel-Haenszel Chi-Square test revealed a significant linear trend of an increasing proportion of tonsillectomies performed for tonsillar stones compared to other indications for 2011 – 2019 (Figure 1)

Conclusion

- Tonsillectomy for an infectious etiology remains the most common indication for surgery in the adult population
- Indication for surgery was not found to be a significant predictor of postoperative bleeding; however, males had higher odds of postoperative bleeding.
- The proportion of tonsillectomies performed for tonsillar stones steadily increased during the last decade.

Contact

Shivam Patel
 Penn State College of Medicine
 Pennsylvania State University, Milton S. Hershey Medical Center
 Email: spatel23@pennstatehealth.psu.edu
 Phone: 717-460-3582

References

- Baugh RF, Archer SM, Mitchell RB, et al. Clinical practice guideline: tonsillectomy in children. *Otolaryngol Head Neck Surg.* 2011;144(1 Suppl):S1-30.
- Inuzuka Y, Mizutani K, Kamide D, Sato M, Shiotani A. Risk factors of post-tonsillectomy hemorrhage in adults. *Laryngoscope Investigative Otolaryngology.* 2020;5(6):1056-1062.
- Jeong JH, Lee DW, Ryu RA, et al. Bacteriologic comparison of tonsil core in recurrent tonsillitis and tonsillar hypertrophy. *Laryngoscope.* 2007;117(12):2146-2151.
- Hoddeson EK, Gourin CG. Adult tonsillectomy: current indications and outcomes. *Otolaryngol Head Neck Surg.* 2009;140(1):19-22.
- Bhattacharyya N, Kepnes LJ. Revisits and postoperative hemorrhage after adult tonsillectomy. *Laryngoscope.* 2014;124(7):1554-1556.
- Lewis SR, Nicholson A, Cardwell ME, Siviter G, Smith AF. Nonsteroidal anti-inflammatory drugs and perioperative bleeding in paediatric tonsillectomy. *Cochrane Database Syst Rev.* 2013;2013(7):Cd003591.
- Tolska HK, Takala A, Pitkaniemi J, Jero J. Post-tonsillectomy haemorrhage more common than previously described—an institutional chart review. *Acta Otolaryngol.* 2013;133(2):181-186.
- Windfuhr JP, Chen YS, Remmert S. Hemorrhage following tonsillectomy and adenoidectomy in 15,218 patients. *Otolaryngol Head Neck Surg.* 2005;132(2):281-286.
- Bhattacharyya N, Kepnes LJ. Economic benefit of tonsillectomy in adults with chronic tonsillitis. *Ann Otol Rhinol Laryngol.* 2002;111(11):983-988.
- Andreou N, Hadjisymeou S, Panesar J. Does tonsillectomy improve quality of life in adults? A systematic literature review. *J Laryngol Otol.* 2013;127(4):332-338.
- Bhattacharyya N, Kepnes LJ, Shapiro J. Efficacy and quality-of-life impact of adult tonsillectomy. *Arch Otolaryngol Head Neck Surg.* 2001;127(11):1347-1350.
- Senska G, Ellermann S, Ernst S, Lax H, Dost P. Recurrent tonsillitis in adults: quality of life after tonsillectomy. *Dtsch Arztebl Int.* 2010;107(36):622-628.